

**Product Summary** (@T<sub>A</sub> = +25°C)

| V <sub>RRM</sub> (V) | I <sub>O</sub> (mA) | V <sub>F(MAX)</sub> (V) | I <sub>R(MAX)</sub> (μA) |
|----------------------|---------------------|-------------------------|--------------------------|
| 30                   | 200                 | 0.5                     | 150                      |

**Features and Benefits**

- Low Forward Voltage Drop
- Guard Ring Construction for Transient Protection
- Negligible Reverse Recovery Time
- Low Capacitance
- Ultra-Small Surface Mount Package
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **The SDM20U30Q is suitable for automotive applications requiring specific change control and is AEC-Q101 qualified, is PPAP capable, and is manufactured in IATF16949:2016 certified facilities.**

**Applications**

- SMPS
- DC-DC Converter
- Freewheeling Diodes
- Reverse Polarity Protection
- Blocking Diodes

**Mechanical Data**

- Case: SOD523
- Case Material: Molded Plastic, "Green" Molding Compound, UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminal Connections: Cathode Band
- Terminals: Finish - Matte Tin Annealed over Alloy 42 Leadframe. Solderable per MIL-STD-202, Method 208 **Ⓔ3**
- Weight: 0.002 grams (Approximate)

**SOD523**


Top View

**Ordering Information** (Note 4)

| Part Number | Compliance | Case   | Packaging         |
|-------------|------------|--------|-------------------|
| SDM20U30Q-7 | Automotive | SOD523 | 3,000/Tape & Reel |

- Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant.
  2. See <https://www.diodes.com/quality/lead-free/> for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
  3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
  4. For packaging details, go to our website at <https://www.diodes.com/design/support/packaging/diodes-packaging/>.

**Marking Information**
**SOD523**


LM = Product Type Marking Code

## Maximum Ratings (@T<sub>A</sub> = +25°C, unless otherwise specified.)

| Characteristic                                                                                   | Symbol              | Value | Unit |
|--------------------------------------------------------------------------------------------------|---------------------|-------|------|
| Peak Repetitive Reverse Voltage                                                                  | V <sub>RRM</sub>    | 30    | V    |
| Working Peak Reverse Voltage                                                                     | V <sub>RWM</sub>    |       |      |
| DC Blocking Voltage                                                                              | V <sub>R</sub>      |       |      |
| RMS Reverse Voltage                                                                              | V <sub>R(RMS)</sub> | 21    | V    |
| Average Rectified Output Current (Note 5)                                                        | I <sub>O</sub>      | 200   | mA   |
| Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load | I <sub>FSM</sub>    | 1.0   | A    |

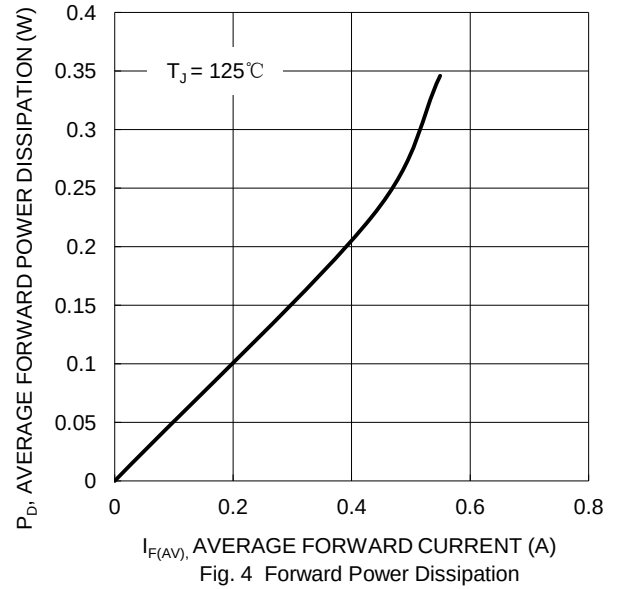
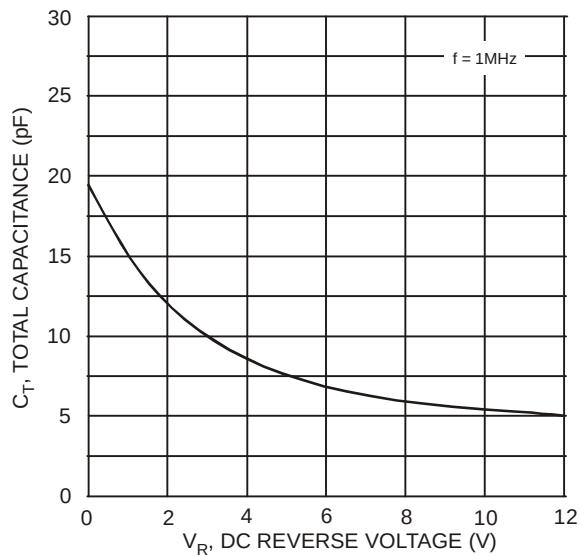
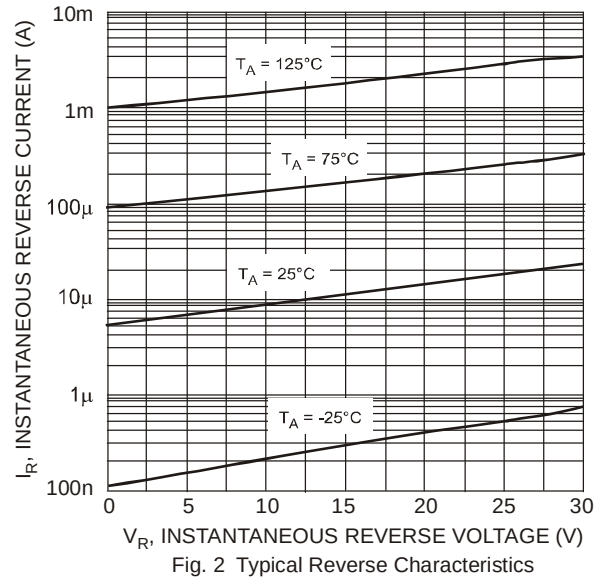
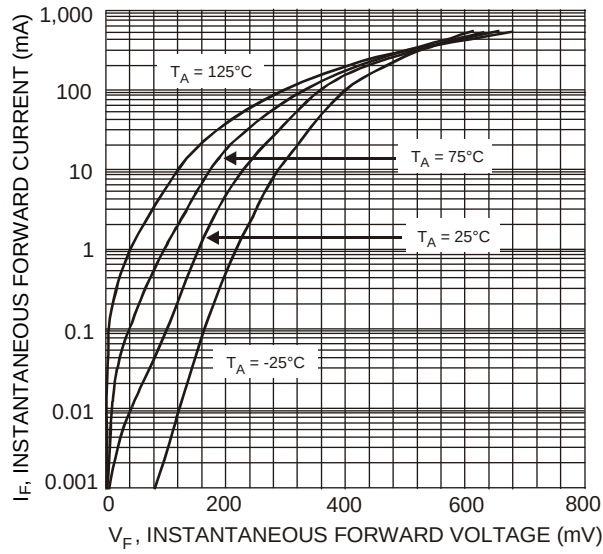
## Thermal Characteristics

| Characteristic                                               | Symbol                            | Value       | Unit |
|--------------------------------------------------------------|-----------------------------------|-------------|------|
| Typical Thermal Resistance, Junction to Ambient Air (Note 5) | R <sub>θJA</sub>                  | 450         | °C/W |
| Typical Thermal Resistance, Junction to Ambient Air (Note 6) |                                   | 300         |      |
| Operating and Storage Temperature Range                      | T <sub>J</sub> , T <sub>STG</sub> | -65 to +125 | °C   |

## Electrical Characteristics (@T<sub>A</sub> = +25°C, unless otherwise specified.)

| Characteristic                     | Symbol             | Min | Typ | Max                          | Unit     | Test Conditions                                                                                   |
|------------------------------------|--------------------|-----|-----|------------------------------|----------|---------------------------------------------------------------------------------------------------|
| Reverse Breakdown Voltage (Note 7) | V <sub>(BR)R</sub> | 30  | —   | —                            | V        | I <sub>R</sub> = 150μA                                                                            |
| Forward Voltage Drop               | V <sub>F</sub>     | —   | —   | 0.15<br>0.20<br>0.35<br>0.50 | V        | I <sub>F</sub> = 100μA<br>I <sub>F</sub> = 1mA<br>I <sub>F</sub> = 20mA<br>I <sub>F</sub> = 200mA |
| Leakage Current (Note 7)           | I <sub>R</sub>     | —   | —   | 150<br>30                    | μA<br>μA | V <sub>R</sub> = 30V<br>V <sub>R</sub> = 10V                                                      |
| Total Capacitance                  | C <sub>T</sub>     | —   | 20  | —                            | pF       | V <sub>R</sub> = 0V, f = 1.0MHz                                                                   |

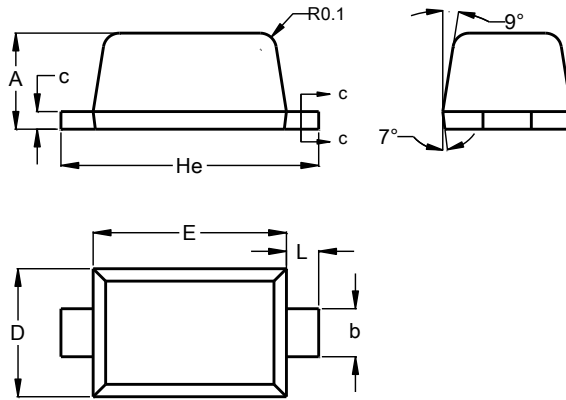
Notes: 5. Part mounted on FR-4 board with recommended pad layout, which can be found on our website at <http://www.diodes.com/package-outlines.html>.  
6. Part mounted on 1-inch sq. 2oz copper pad.  
7. Short duration pulse test used to minimize self-heating effect.



## Package Outline Dimensions

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

### SOD523

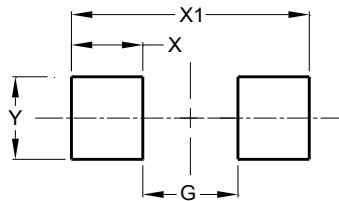


| SOD523               |      |      |
|----------------------|------|------|
| Dim                  | Min  | Max  |
| A                    | 0.55 | 0.65 |
| b                    | 0.26 | 0.34 |
| c                    | 0.11 | 0.17 |
| D                    | 0.75 | 0.85 |
| E                    | 1.15 | 1.25 |
| He                   | 1.55 | 1.65 |
| L                    | 0.10 | 0.30 |
| All Dimensions in mm |      |      |

## Suggested Pad Layout

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

### SOD523



| Dimensions | Value (in mm) |
|------------|---------------|
| G          | 0.80          |
| X          | 0.60          |
| X1         | 2.00          |
| Y          | 0.70          |

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